

What Is Claimed Is:

1. A propeller shaft assembly comprising a thin-walled tubular member, a connecting member fixed to each end of the tubular member, and a support member fixed within the tubular member, the support member comprising a rigid foamed plastic extending a first length
5 (L1) within the tubular member and engaging an interior surface of the tubular member to increase the bending frequency of the propeller shaft assembly.

2. An assembly according to claim 1 wherein said support member comprises an open-cell foamed plastic impregnated with a high
10 modulus resin or cement.

3. An assembly according to claim 1 wherein said support member is tubular.

4. An assembly according to claim 3 wherein said support member includes a plurality of openings formed along the first length (L1)
15 for reducing the weight of the support member.

5. An assembly according to claim 2 wherein said open-cell foamed plastic is flexible.

6. An assembly according to claim 1 wherein said tubular member comprises metal or reinforced plastic.

7. An assembly according to claim 1 wherein said tubular member has a second length (L2) and the ratio $L1/L2$ is less than 1.0.

8. An assembly according to claim 1 wherein the connecting members are joint elements or stub shafts.

5 9. A power transmission shaft comprising a thin-walled metal tube having a joint element or stub shaft fixed to each end thereof, and a support member co-axially located within said tube and engaging an interior surface of said tube, said support member comprising a rigid foamed plastic extending along a length of the tubular member.

10 10. A power transmission shaft according to claim 9 wherein the support member has a first length (L1) and said tube has a second length (L2) and the ratio $L1/L2$ is less than 1.0.

11. A power transmission shaft according to claim 9 wherein the support member includes a plurality of openings formed along
15 the first length (L1) for reducing the weight of the support member.

12. An assembly according to claim 9 wherein said support member comprises an open-cell foamed plastic impregnated with a high modulus resin or cement.

13. An assembly according to claim 12 wherein said open-
20 cell foamed plastic is flexible.

14. A method of producing a rigid power transmission shaft comprising:

providing a thin-walled metal or reinforced plastic tube; and
introducing a support member co-axially within said tube to
engage an interior surface of said tube, said support member comprising a
rigid foamed plastic extending along a length of the tubular member.

5 15. A method according to claim 14 wherein the step of
introducing includes impregnating an open-cell plastic foam with a high
modulus resin or cement, and introducing said impregnated plastic foam
into an interior of said tube.

10 16. A method according to claim 14 wherein the step of
introducing includes foaming a plastic or cement support member within
an interior of said tube.

15 17. A method according to claim 16 wherein the step
introducing includes co-axially locating a mandrel within said tube and
foaming a plastic or cement support member in a region between said
mandrel and said tube.

18. A method according to claim 15 wherein the step of
introducing said impregnated plastic foam into an interior of said tube
occurs before said impregnated plastic foam has set up.

20 19. A method according to claim 15 wherein the step of
introducing said impregnated plastic foam into an interior of said tube
occurs after said impregnated plastic foam has set up.